THE COUNTRY SLAUGHTERHOUSE; HOW TO BUILD IT

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Read before Section on Food and Drugs, American Public Health Association, at New Orleans, La., October 28, 1919.

IT is estimated that in the year 1918 of all cattle slaughtered in the United States 3,921,000 were killed in establishments not operating under the Federal Meat Inspection Act of 1906; the estimate for calves is 4,310,000, and for swine 28,640,000 head. Of the number of animals enumerated some were slaughtered by the farmer on the farm, and the larger number were killed in the country slaughterhouse.

As such a large proportion of the animals are slaughtered in the country slaughterhouse, it is needful that the slaughterhouse shall be constructed so that sanitary conditions can be maintained.

In surveys made in several states the slaughterhouses were found in such insanitary conditions that if clean, healthful, wholesome meats were to be provided, extensive alterations in the buildings and surroundings were imperatively necessary. Methods of operation also required modification. The following descriptions of conditions disclosed by the surveys are taken from the files in the Bureau of Animal Industry of the United States Department of Agriculture. The slaughterhouses where animals are killed for local consumption are usually isolated and scattered about the town, either situated on some back street surrounded by stables and dwellings, or outside of the corporate limits where they are not subjected to undesirable observation.

One state reports that of 327 slaughterhouses inspected, only 23, or about seven percent, were found to fulfill sanitary standards adopted by the state. The Act approved contained the following: Insanitary conditions shall be deemed to exist wherever and whenever any one or more of the following conditions appear or are found, to wit: If the slaughterhouse is dilapidated and in a state of decay; if the floors and side walls are soaked with decaying blood or other animal matter; if efficient fly screens are not provided; if the drainage of the slaughterhouse or yard is not efficient; if maggots, filthy pools, or hog wallows exist in the slaughterhouse yard or under the slaughterhouse; if the water supply used in connection with the cleansing or preparing is not pure and unpolluted; if hogs are kept in the slaughterhouse yard or feed therein on animal offal, or if the odors of putrefaction plainly exist therein.

At nearly all slaughterhouses inspected, foul, nauseating odors were evident for yards around; swarms of flies filled the air and the buildings, and covered the carcasses which were hung up to cool. Beneath the houses was to be found a thin mud or mixture of blood and earth churned by hogs, which are kept to feed on offal. Maggots frequently existed in numbers so great as to cause a visible movement of the mud. Water for washing meat was frequently drawn from dug wells, which receive seepage of the slaughterhouse yards, or the water was taken from the adjoining streams, to which the hogs had access. Dilapidated buildings were the usual thing, and always the most repulsive surroundings and odors existed. Slaughterhouses of fair sanitary condition were not found. They were abominably bad or else met the standard completely.

Reports from other states present similar conditions, but it is not necessary to give additional descriptions.

Another feature to be noticed in connection with the subject is that every slaughterhouse may be a potential center of disease, and naturally the poorer the condition of the premises the more dangerous it is. This fact is apparent from the character of the work performed. Even if only a few animals are slaughtered each week, the total number may amount to several hundred during the year and it is probable that some of the animals are diseased. If the offal from diseased animals is fed uncooked to the hogs which are raised upon the grounds the latter may become infected. Rats frequently overrun the place, and they in turn may become infected with trichinæ. Rats act as direct transmitters of trichinoisis to hogs.

If a slaughterhouse should be burned or abandoned as sometimes happens, the rats which inhabited the premises will wander to neighboring farms, and will carry with them the disease that they have contracted from eating diseased offal. If hogs suffering from hog cholera or swine plague are killed and the offal thrown into the yard draining into a creek, the creek becomes contaminated and the disease may spread to the farms lower down the creek.

A country slaughterhouse then to be operated under sanitary conditions should be planned to include essential features as follows: (first) suitable location; (second) abundant water supply; (third) buildings so constructed that they may be kept clean with the least amount of labor.

LOCATION.

The lot should possess natural drainage in order that pools of water will not be formed on the surface of the ground and remain sufficiently long to become stagnant. If the natural grade does not furnish efficient drainage, the lot must be graded and ditches or sub-soil drainage must be supplied.

The slaughterhouse proper should be so located on the lot that direct sunlight may be admitted on three sides of the killing room. This condition can be obtained if the cooler is towards the north, and the holding pens are towards the south. The east and west sides of the cooler may be shaded by other buildings or by trees, but the killing room should be in the open. Where the cooler is exposed on three sides, the arrangement shown is best, as the walls of the cooler are subjected to the least variation in temperatures and there is, therefore, a more even temperature maintained in the cooler with a resultant saving of ice.

WATER.

The water must be potable and must be obtained from a supply that is not subjected to pollution from any source, and the supply must be ample to permit of free use in cleaning the premises, both within and without the buildings, after killing operations have ceased for the day.

PLAN AND CONSTRUCTION.

The slaughtering plant may consist of one or more compartments. If of but one room, it will be a compartment in which the animals are killed and the carcasses dressed and prepared for food. An addition to serve as a cooler should be provided if it is necessary to hold the carcasses longer than a few hours and the temperature of the locality is higher than 45° F.

KILLING ROOM.

The killing or slaughtering room should be constructed with an impervious floor, and with tight, smooth walls and ceiling. Numerous windows should be installed in the outside walls so that an abundance of direct natural light can be admitted, as sunlight is of assistance in maintaining sanitary conditions.

The floor of the room should be made of concrete, asphalt, or vitrified brick, and the floor must be so constructed that it will slope or pitch to floor drains which may be either gutters or cast iron stable traps. There must be sufficient slope or pitch to the floor to allow all liquids to flow without interruption to the gutters or drains which must be of sufficient size to carry off the drainage quickly. A pitch of ¼ inch to the foot is sufficient for a properly constructed floor, but it

is better to make the pitch ⅜ of an inch to the foot to overcome the inequalities of the floor due to faulty construction and faulty workmanship.

WALLS AND CEILING.

The walls and ceiling of the room should be as smooth as possible. The walls to a height of at least six feet from the floor should be made impervious to all liquids so that they can be readily washed and kept clean. Above the impervious portion the studs should be sheathed with matched and dressed lumber. Matched and beaded ceiling should not be used as the recesses formed by the beads furnish crevices for the lodgement of dirt and dust and also furnish breeding places for vermin. Portland cement plaster may be used on the walls, or galvanized metal sheets may be nailed to the wooden sheeting of the walls. If metal sheets are used all joints, both vertical and horizontal, must be soldered to prevent liquids and vermin from gaining access behind the metal sheets. The ceiling should be sheathed in order that there will be no accumulation of dirt, dust, and cobwebs, and the labor of cleaning the room thereby increased. Some ceilings will require less paint as the surface exposed is less than if the rafters or ceiling joints are left uncovered.

WINDOWS.

The windows of the killing room should be as numerous as the wall space will permit. They should be located so that the lower edge of the sash will be about five feet from the floor and the tops of the windows as close to the ceiling as construction will permit. The windows may be either sliding sash or casement sash that are hinged to swing like a door. The casement sash permits of the entire opening to be used and will therefore admit more air, which is an advantage in warm climates. All openings must be screened to prevent the entrance of flies and other vermin.

CONSTRUCTION.

The building may be constructed with a balloon frame superstructure and concrete foundation. The portion under the cooler is excavated to furnish a hide cellar. The portion below the killing room and fore-cooler is not excavated but is to be filled in with gravel or broken rock to a sufficient height to carry the concrete floor of the killing room. The purpose of the rock filling is to prevent ground water from being absorbed by the concrete floor, and it also permits the floor to dry more thoroughly. A storage space for hides is provided in the cellar under the chill room. The hide cellar should have an entrance from outside the building as this will prevent the odors from the hides permeating the building.

The offal and other refuse incident to killing operations should be removed daily from the premises and the premises should be kept clean to prevent maintaining a nuisance and also to eliminate fly-breeding places.

HANGING ROOM AND COOLER.

The hanging compartments are of two kinds, one in which the carcasses can be hung to dry and to remove a part of the animal heat. Animal heat will not be reduced materially below the temperature of the surrounding air. The other kind of a hanging room consists of a compartment in which the air is chilled by means of ice or mechanical refrigeration.

In localities where the temperature is higher than 45° F. the cooler or chill room will be necessary if the carcasses are to be held in storage longer than a few hours. The chill room is so constructed that the floor, walls and ceiling do not permit a rapid exchange of air from the inside to the outside of the building. The air of the room is, therefore, partially under control and can be maintained at a nearly even temperature by means of refrigeration.